

said dynamically balancing means moving said dynamic balancer opposite said slide in said cycle whereby said dynamic balancer operates to dampen vibration from said slide.

4. (Original) A slide drive device, according to claim 3, further comprising:
guiding means for guiding of said slide drive device;
at least a first horizontal link;
said first horizontal link operably connecting to said slide;
said guiding means guiding said first horizontal link in said cycle;
said driving means including said guiding means; and
said guiding means guiding said adjustment and said driving displacement to said slide whereby said stroke is adjusted.

5. (Currently amended) A slide drive device, according to claim 4, further comprising:
a crankshaft;
first and second connecting rods on said crankshaft;
said first and said second connecting ~~rod~~ rods receiving a reciprocating motion and transmitting said reciprocating motion to said means for driving;
said first and said second connecting ~~rod~~ rods and said means for driving being effective to transmit said reciprocating motion to said dynamically balancing means; and
said guiding means being effective to convert said reciprocating motion to a guiding displacement, whereby said slide operates in said cycle.

6. (Previously amended) A slide drive device, according to claim 5, further comprising:
said at least first upper link having a first length (a);
at least a first middle link;
a center fulcrum pin on said first middle link;
said first upper link operably connecting to said first middle link at said center fulcrum pin;
a first and second end on said first middle link;

said first connecting rod operably coupled to said second end;

said first middle link comprising a second length (b) measured between said first end and said center fulcrum pin, and a third length (c) measured between said second end and said center fulcrum pin; and

said first, second, and third lengths having the following relationship:

$$(a):(b) = (b):(c) \quad (V)$$

whereby said first connecting rod transmits said driving displacement to said first upper link and said first middle link and driving means reduces a slide speed adjacent said bottom dead center position and increases said slide speed distal said bottom dead center position.

7. (Previously amended) A slide drive device for a press machine having a slide, comprising:

a slide;

said slide having a top and a bottom dead center position;

a single adjusting means for adjusting a stroke of said slide;

said adjusting means simultaneously adjusting said top and bottom dead center positions by a same amount;

a driving means for permitting driving of said slide drive device;

at least a first upper link;

said first upper link being connected to drive said slide in a cycle;

said driving means transmitting a driving displacement to said slide to drive said slide in said cycle; and

said driving means transmitting said adjustment to said slide whereby said stroke is adjusted.

8. (Currently amended) A slide drive device, according to claim 7, further comprising:

a guiding means for guiding of said slide drive device;

at least a first horizontal link;

~~first and~~ a second linear guides guide;

said first and second connecting ~~rod~~ rods receiving a reciprocating motion and transmitting said reciprocating motion to said driving means;

said driving means being effective to transmit said reciprocating motion to said dynamically balancing means; and

a guiding means being effective to convert said reciprocating motion to a said guiding displacement, whereby said slide operates in said cycle.

11. (Currently amended) A slide drive device, according to claim 10, further comprising:
a small and a large end on said ~~one~~ first connecting rod;
said large end operably attached to said ~~one~~ first eccentric part;
said small end operably attached to said driving means; and
said small end reciprocating linearly to a rotation center of said ~~crank-shaft~~ crankshaft
whereby said driving displacement is transmitted to said slide.

12. (Currently amended) A slide drive device, according to claim 11, further comprising:
at least a first upper link;
said first upper link operable about a fixed fulcrum pin;
said at least one upper link having a first length (a);
at least a first middle link;
a center fulcrum pin on said first middle link;
said first upper link pivotably joined to said ~~one~~ first middle link at said center fulcrum pin;
a first and second end on said ~~one~~ first middle link;
said ~~one~~ first connecting rod operably coupled to said second end;
said ~~one~~ first middle link comprising a second length (b) measured between said first end and said center fulcrum pin, and a third length (c) measured between said second end and said center fulcrum pin; and
said first, second, and third lengths having the following relationship:
$$(a):(b) = (b):(c)$$

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a first and second side on said one horizontal link;
said first side operably joined to said second slider;
said second side operably joined to said one lower link;
said one lower link operably joining said first slider and said one horizontal link; and
said first slider being effective to convert said driving displacement to a linear displacement whereby said one lower link operably drives said one horizontal link and said slide in said cycle.

16. (Previously amended) A slide drive device, for a press machine having a slide, comprising:

a single means for adjusting said slide drive device;
a crankshaft;
a first eccentric part on said crankshaft;
a second eccentric part on said crankshaft;
said first and second eccentric parts operably opposing each other about a rotation center of said crankshaft;
a first and second connecting rod;
said connecting rods operably joined to said eccentric parts;
said connecting rods receiving a driving displacement from said crankshaft;
a first and second upper link;
said upper links operable about a fixed fulcrum pin;
a first and second middle link;
said middle links having first and second ends;
said connecting rods effective to transfer said driving displacement to said middle links at said second ends;
said upper links operably joined to said middle link at a center fulcrum point between said first and second ends;
said middle links effective to transfer said driving displacement to said upper links;

said middle links and said upper links operably effective to transfer said driving displacement to a slide and drive said slide in a cycle;

said connecting rods having a length (a);

said center fulcrum point located a length (c) from said second end;

said center fulcrum point located a length (b) from said first end; and

said lengths (a), (b), (c), having the following relationship:

$$(a):(b)=(b):(c) \quad . \quad (VII)$$

whereby said connecting rods operate horizontally to said crankshaft and said upper links and said middle links are effective to transfer said driving displacement to said slide and drive said slide in said cycle at a low speed adjacent said bottom dead center for increased force and a fast speed distal said bottom dead center for a speedier return.

17. (Previously amended) A slide drive device, according to claim 16, further comprising:

a top and a bottom dead center position of said slide;

said adjusting means permitting adjustment of a stroke of said slide;

said adjusting means permitting adjustment of said top and bottom dead center position at the same time;

said adjusting means permitting said adjustment of said top and bottom dead center positions by the same amount;

at least one of a first and second horizontal link;

a first and second end on said one horizontal link;

said one horizontal link effective to receive said driving displacement at said second end;

said one horizontal link effective to receive said adjustment at said first end; and

said one horizontal link effective to transfer said driving displacement and said adjustment to said slide whereby said slide is adjusted and driven in said cycle.

18. (Original) A slide drive device, according to claim 17, further comprising:

means for dynamically balancing said slide drive device;

said dynamic balancing means operably moving a dynamic balancer opposite said slide in said cycle;

a guide pin operably guiding said dynamic balancer during said cycle;

said guide pin vertically aligned with said fixed fulcrum pin;

said dynamic balancing means driven by said one connecting rod; and

said dynamic balancing means being effective to counter a momentive force of said slide and said one connecting rod whereby said slide operates in said cycle with substantially lower vibration.